

U.S. Patent Application No.: 09/308,770

Art Unit: 1762

Page 2

AMENDMENTS TO THE CLAIMS

1. (previously presented) A process for the preparation of organically modified aerogels with permanently hydrophobic surface groups, comprising:

- a. preparing a lyogel, wherein the lyogel is a silicate-type hydrogel, by bringing an aqueous water glass solution to a pH value ≤ 3 with the aid of an acidic ion-exchanged resin or an inorganic acid to produce silicic acid and, via the addition of a base, polycondensing the silicic acid to give a SiO_2 gel;
- b. introducing the lyogel into a reactor;
- c. washing the lyogel introduced into the reactor in step b) essentially free of water with an organic solvent;
- d. surface-silylating the lyogel obtained in step c) with a surface-silylating agent to produce a surface-silylated lyogel; and
- e. drying the surface-silylated lyogel obtained in step d) to obtain an aerogel,

wherein the surface-silylating agent in step d) comprises a disiloxane of formula I



wherein the residues R, independently of one another, identically or differently, signify in each case a hydrogen atom or a nonreactive organic residue that is linear, branched, cyclic, saturated or unsaturated, or aromatic or heteroaromatic.

2-5. (cancelled)

6. (previously presented) A process in accordance with claim 1, characterized by addition of IR turbidity-promoting agents.

U.S. Patent Application No.: 09/308,770

Art Unit: 1762

Page 3

7. (previously presented) A process in accordance with claim 1, characterized by addition of fibers.
8. (previously presented) A process in accordance with claim 1, wherein the lyogel obtained in step a) is aged before it is washed in step c).
9. (previously presented) A process in accordance with claim 1 wherein the lyogel in step c) is washed until the water content of the lyogel is ≤ 5 wt%.
10. (previously presented) A process in accordance with claim 1 wherein the organic solvent in step c) comprises aliphatic or aromatic hydrocarbon.
11. (previously presented) A process in accordance with claim 1 wherein the surface-silylating agent in step d) comprises symmetrical disiloxane.
12. (previously presented) A process in accordance with claim 1 wherein all the residues R in the disiloxane are identical.
13. (previously presented) A process in accordance with claim 1 wherein the surface-silylating agent in step d) is hexamethyldisiloxane.
14. (previously presented) A process in accordance with claim 1 wherein the surface-silylating in step d) is carried out in a solvent.
15. (previously presented) A process in accordance with claim 1 wherein the surface-silylating in step d) is carried out in the presence of a catalyst.

U.S. Patent Application No.: 09/308,770

Art Unit: 1762

Page 4

16. (previously presented) A process in accordance with claim 1 wherein the surface-silylating in step d) is carried out in the presence of catalytic quantities of trimethylchlorosilane.

17. (previously presented) A process in accordance with claim 1 wherein, prior to step e), the surface-silylated lyogel is washed with a protic or aprotic solvent.

18. (previously presented) A process in accordance with claim 1 wherein step e) comprises subcritically drying the surface-silylated lyogel.

19. (previously presented) A process for the preparation of organically modified aerogels with permanently hydrophobic surface groups, comprising;

- a. introducing a lyogel into a reactor;
- b. washing the lyogel introduced into the reactor in step a) essentially free of water with an organic solvent;
- c. surface-silylating the lyogel obtained in step b) with a surface-silylating agent to produce a surface-silylated lyogel; and
- d. drying the surface-silylated lyogel obtained in step c) to obtain an aerogel,

wherein the surface-silylating agent in step c) comprises a disiloxane of formula I



wherein the residues R, independently of one another, identically or differently, signify in each case a hydrogen atom or a nonreactive organic residue that is linear, branched, cyclic, saturated or unsaturated, or aromatic or heteroaromatic, and wherein, prior to step c), the lyogel is washed with a solution of an orthosilicate capable of bringing about condensation, of formula $R^1_4Si-(OR^2)_n$ wherein $n = 2$ through 4 and R^1 and R^2 , independently of one another, are hydrogen atoms, linear or branched C_1 - C_4 alkyl residues, cyclohexyl residues or phenyl residues.

U.S. Patent Application No.: 09/308,770

Art Unit: 1762

Page 5

20. (currently amended) A process in accordance with claim 4 1 wherein an inorganic acid is used to bring the aqueous water glass solution to a pH value of ≤ 3 , and the lyogel is washed essentially free from electrolytes with water.

21. (previously presented) A process in accordance with claim 10, wherein the organic solvent in step c) is selected from aliphatic alcohols, ethers, esters, and ketones.

22. (previously presented) A process in accordance with claim 15 wherein the catalyst comprises an acid.

23 (previously presented) A process in accordance with claim 19 wherein the orthosilicate is selected from alkyl orthosilicate and aryl orthosilicate.

24. (previously presented) A process in accordance with claim 1, wherein, prior to step d), the lyogel is washed with aqueous silicic acid solution.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☐ **BLACK BORDERS**
- ☐ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.